Board of Directors Characteristics and Their Relationship to CEO Turnover

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Abstract

We study how independent directors behaviour and personal characteristics affects CEO turnover as well as firm performance. The likelihood for him to be replaced after poor firm performance and what impact board diversity has on firm performance. The two main board characteristics studied in this thesis is experienced and how diversified the board is. The experience measure has two main components, both an age threshold and a dummy variable capturing involvement in multiple boards. We measure diversity within the board by three factors; gender, nationality and number of independent directors. Two versions of the diversity measure are included in our specifications, one less strict than the other.

We find a negative significant relationship between older independent directors and CEO turnover. We find no statistically significant results for earlier firm performance on CEO turnover. However, we find a significant result with the less strict board diversity measure to firm performance and it matches our prediction that firm performance increases with a more diverse board.

Focus of the thesis

This thesis focuses on four main parts; independent directors characteristics, firm performance, CEO turnovers and board diversity. We investigate what effect a board with experienced and talented independent directors have on CEO turnover as well as firm performance.

We study how earlier firm performance affects the CEO turnover. Another hypothesis studied are how diversity in the boardroom affects how well the company is performing. The thesis is based on data collected from publically traded Swedish companies, over the time period between 2006 and 2011.

1. Introduction

The role of independent directors has been a central theme in corporate board governance research and there have been numerous studies investigating independent directors behaviour in the boardroom and their ability to monitor the CEO.

Weisbach (1988) discovered that the sensitivity of CEO turnover to firm performance is higher for firms with more effective board monitoring.
Independent directors have an incentive to monitor intensively in order to maintain their reputation as effective monitors within the director labour market. Independent directors tend to resign from poorly performing firms or put less effort into firm directorships they view as less desirable. Directors in less successful firms are hurting their reputation and are less likely to become directors on other boards (Kaplan and Reishus, 1990 & Masulis and Mobbs, 2014).

Masulis and Mobbs (2014) document that busy independent directors do not give an equal priority to the boards and they are forced to prioritize due to their limited time and energy. Fich and Shivdasani (2006) explain that busy directors holding multiple outside directorships have limited time and energy they can spend at each directorship. A busy director could harm small newly started firms because these firms often experience uncertainty and growth resulting in increasing decision-making. These firms require much of the director's attention (Field, Lowry & Mkrtchyan, 2013).

The CEO can experience forced or unforced turnover. One of the most important decisions that can be taken on the board is when the directors stand united with a majority in the purpose to fire the CEO. (Guo & Masulis, 2015). According to Steven, Kaplan and Minton (2011) the CEO faces a forced turnover, mainly if he is not a good fit for the firm, if he performs poorly, lacks of effectiveness, makes too few appropriate decisions, if the company performs poorly or if he is fired after a downward trend in the stock price. Besides forced turnover the CEO may leave due to retirement, health problems, too much pressure, the offer of a more attractive position or if his life unfortunately ends.

A well-debated issue in the boardroom facing managers, directors and shareholders is the homogenous composition of directors. Gender, nationality and cultural of directors is often the same. Firms have recently started to support board diversity since it improves firm performance. (Brancato, 1999; Carter et al., 2003; Mattis, 2000)

Carter, Simkins and Simpson (2003) also report one of the first results with a positive correlation between the fraction of women or minorities and firm value. They also find that the number of women and minorities increases with board size and firm size. The presence of minority members on the board increases perspective and creativity (Watson et al. 1993 & Arfken et al. 2004).

2. Literature review

2.1 The role of the independent directors on the board

An independent director do not have any kind of relation with the firm or its management and provides the board with his expertise and experience from earlier board involvements. (Swedish code for corporate governance ,2015). The independent directors have two separate roles in the board. First, the director is expected to advise the board to the right path (Adams et al. 2010). Second, the director posses the ability to reduce the agency cost by monitoring the management of the firm. According to Hermalin (2005) their model explains that greater board independence leads to better control in the board and more intensive monitoring by the independent directors.

Raheja (2005) explains that non-independent directors are assumed to posses a greater knowledge than independent directors about the firm projects, which result in a more effective decision-making in the boardroom. This scenario holds if we assume that independent director's information is costly, which it most certain is.
It is difficult to determine whether board independence is effective or not. Adams and Ferreira (2007) have questioned this and in fact Agrawal and Knoeber, 1996; Bhagat and Bolton 2009; Randøy and Jensen, 2004 have observed negative effects of board independence on firm

performance. Adams and Ferreira (2007) argue that a larger amount of independent directors sitting in the board can be sub-optimal for the company if the CEO is not willing to share information.

Another interesting fact documented by Bhagat and Bolton (2008) is that CEO turnover increases with a larger number of independent directors on the board. Randøy and Jensen, (2004) examines the Swedish market and find a negative relationship between Tobin's Q and greater board independence for companies operating in highly competitive industries and the opposite for companies operating in less competitive industries. They introduce the idea of competitive environment as a tool for board monitoring.
Duchin et al. (2010) study US markets and concludes that board independence improve firm performance for firms with lower information cost and reduce firm performance for firms with higher information cost. For the firms with low information cost, greater board independence benefits the shareholders (Laux, 2008). Mette Lausten (2002) finds that firm performance is positively correlated to CEO turnovers, this study is highly relevant for us, since Denmark is a Scandinavian country and applies similar rules.

Several studies have tested the effect of board independence to firm performance. The overall result is that board independence has a negative or no effect at all. Studies such as; Hermalin and Weisbach (1991), Bhagat and Black (2000) find no significant relationship at all. However a study by Agrawal and Knoeber (1996) finds a significant negative relationship.

2.2 Different types of CEO turnovers

The chairman plays the role as the head of the board and the CEO is the main representative of the firm. The CEO is responsible to take care of the on-going management. (Swedish corporate governance code, 2015)
Kaplan and Minton (2011) claim that CEO turnovers can be divided into two categories. The first one is a result of external factors such as takeovers or following bankruptcy, also called nonstandard. The second one depends on internal or standard factors and is board driven. The first mentioned type affects mostly factors related to mergers and acquisitions, and less to bankruptcy. When a takeover occurs it does not have to mean that the CEO has to quit, they

might actually consider the CEO of the former company to have the required ability. However during bankruptcy the CEO often have no other option than to quit working in the firm.

Internal factors of CEO turnovers are more relevant to our thesis. The board driven factors of CEO turnovers can be divided into two parts, forced and voluntary turnovers, both are sensitive to poor stock performance. Forced departures are often associated to bad firm performance or to bad performance by the CEO. Unforced turnovers are often a result of retirement or a voluntary resign of the CEO. (Kaplan and Minton, 2011) According to Jenter and Lewellen (2010) the most common situation for turnovers are the internal ones, it is an interesting observation that even if the CEO turnover is not seen as forced it may still not be a voluntary turnover.

2.3 CEO turnover sensitivity to performance

The result by Laux (2008) tells us that greater board independence leads to more CEO turnovers, and those turnovers may in many cases be consequences of bad performance by the CEO. The fact that CEO turnover is common when there are more independent directors on the board is an argument that monitoring the CEO is more effective with more independent boards. It can be viewed as a result of the greater objective behaviour of independent directors.

Independent directors provide more intensive internal monitoring, independent directors who have a reputation of being effective monitors are often recruited to multiple directorships.

The experience they possess by the involvement in multiple boards, makes them aware of how to act when experiencing difficult decisions. (Guo & Masulis, 2015). An earlier study by Laux (2008) also implies that an independent board does not necessarily leads to an improved corporate governance structure.

The CEO's position is more threatened when the board is more independent. The probability for the CEO to be dismissed increases with more independent directors on the board. This can be explained that less independent boards are more ineffective in monitoring the CEO (Weisbach, 1988). It is documented by Shivdasani and Yermack (1999) that when the CEO sits on the nominating committee, he appoints fewer independent directors to the board. This

strengthens the earlier reasoning about the CEO feeling threatened. The CEO's involvement in the nomination process reduces the monitoring effectiveness (Guo and Masulis, 2015).

Hermalin and Weisbach (2003) argue that a suitable way to evaluate the board's overall effectiveness is to study the quality of the CEO turnover decisions. Hermalin (2005) states that among the few decisions that are made in a firm where boards plays a significant role "are decisions about monitoring, pertaining to the selection or the dismissal of the CEO."
Jenter and Kanaan (2015) explains that one of the most important decision that the directors on the board are aimed to take concerns whether to retain or fire the CEO during or after a bad stock price shifting, or if the CEO's performance do not match with the expectations of the shareholders. Guo and Masulis (2015) observe that when the board and the nominating committee become more independent, the sensitivity against CEO turnover increases. Guo and Masulis (2015) also states that CEO turnover to firm performance are higher for the firms created prior to the new code, they have less independent boards and a CEO on the nominating committee.

We discovered some interesting changes of rules regarding board governance in USA, which is worth mentioning. After the new reforms of board governance, the board and the nominating committee is required to have a majority of independent directors. This reform made boards compliant to the nominating committees, which in turn leads to a significant rise in CEO turnover sensitivity to firm performance. The reforms demanded that compensation and audit committees had to be fully independent. This on the other hand does not have any effect on the replacement of the CEO. The rules for board and nominating committee have complementary effects on board monitoring (Guo & Masulis, 2015).

2.4 Effects of Board diversity on firm performance

Tiaa-Cref (1997) considers boards to benefit from qualified individuals who reflect diversity of gender, race, experience and age. National Association of Corporate Directors (1994) state similarly, that during the selection process for directors, their gender, racial, age and national diversity should been taken into account. Sun Oil's CEO, Robert Campbell state, "the

presence of a woman or minority group on the board might have positive impact with their different perspectives" Campbell (1996)

Robinson and Dechant (1997) discovered positive effects of board diversity. Diversity provides the board with a better understanding of the market environment, improves the creativity and innovation. Last of all it increases the effectiveness of problem-solving and corporate leadership and it promotes the global relationships (Robinson and Dechant, 1997), (Ibarra, 1992, 1993) & (Fondas, 2000)

Cox and Blake (1991) argue that firms might face substantial losses if they do not succeed with their integration of diverse workforce.

Negative aspects of board diversity are documented as well. Previous evidence on board composition to firm performance will be discussed below. Shrader, Blackburn and Iles (1997) find that a higher percentage of women on the board decreased firm performance. Zahra and Stanton (1988) investigated the percentage of ethnic minority directors but did not document any statistically significant result. Carter, Simkins and Simpson (2003) find a statistically significant positive relationship between the presence of women and minorities on the board to firm performance.

Baysinger and Butler (1985) state that board independence improves firm performance but the optimal board composition is with both independent and non-independent directors. Against it, Hermalin and Weisbach (1991) did not record any significant results at all and Yermack (1996), Bhagat and Black (1999), Agrawal and Knoeber (1996) discovered a negative correlation.

3. Institutional background

This is about parts of the Swedish code for board governance (2015) that is for our interest. and it was recently updated (1 nov, 2015). The objective of the code is to ensure that the shareholders interest is taken care of in a sustainable, responsible and efficient way. The code consists of a guideline for how to behave and to insure that good corporate governance is met.

The code put a lot of effort on board composition, the duty of the management and members of the board. The rules of the code demand firms to have at least 50 % independent directors on the board. This is of importance since it has a huge affect on the board voting balance. The code consists of guidelines for the committees (audit, remuneration and nomination). As explained by the code, a majority on the nominating committee have to be independent, whereas the audit and remuneration committees must solely consist of independent directors.

The code states that independent directors do not have any sort of relation with the firm or its management. At least two of the members have to be independent with the company's larger shareholders, which means that the larger shareholders are able to appoint members that they have a relation to. To be classified as a larger shareholder you have to hold at least 10 % ownership or voting rights. There are no restrictions for the number of outside directorships for the independent director to hold (Swedish code for corporate governance ,2015).

The CEO can be a part of the board but cannot take the position as the chairman. Regardless if the CEO is a board member or not he is allowed to take part of the meetings unless in certain cases where the board decides otherwise. The CEO is constrained to a limited amount of outside directorships unlike the independent directors. First of all, the CEO has to seek approval of the board, before the acceptance of an offer as director of another board (Swedish code for corporate governance, 2015).

4. Hypothesis development

Boards usually consist of people with the knowledge that is required for effective monitoring and decision-making. (Masulis & Mobbs, 2014). The non-independent director's careers are correlated with the CEO's and therefore they monitor less than the independent directors (Hermalin, 2005).

Independent directors are seen as more effective since they monitor more intensively and are particularly aware of their reputation. The independent directors talent is based on the total amount of holding outside directorships a certain time. A director holding multiple

directorships at the same time and still manage to give the required amount of attention to all his directorships is a sign of talent. (Masulis & Mobbs, 2014).

If a firm perform poorly, the CEO's chance to stay reduces with more independent directors on the board (Guo & Masulis, 2015). Another effect is that the independent directors put less focus on the less performing firms, because they want to protect their reputation (Masulis & Mobbs, 2014). The greatest motivation for independent directors is to keep and enhance their own reputation (Fama & Jensen, 1983). Reputation is based on the firm size, given that larger firms afford greater visibility for the directors. The directors strive to gain reputation as talented monitors, which affect their value of human capital (Fama, 1980).

Board independence generally leads to improved firm performance (Laux, 2008). If independent directors are more talented, they tend to have a better judgment, which will have a positive effect on firm performance (Masulis & Mobbs, 2014). With this in mind we argue that an independent director who is more talented and experienced, has a positive impact on the firm. Prior research finds several factors that can affect a director's ability to behave objectively and provide a reliable monitoring, based on social connections to the CEO (Masulis & Mobbs, 2014). Independent directors tend to be more objective when it comes to voting in the board due to the less personal relationship with the CEOs and thanks to experience they have a better view of how the company should be operated (Magilke, Mayhew & Pike, 2009). If the independent directors believe that the CEO did not perform as expected they are more likely to vote for a dismissal of the CEO. If independent directors tend to be more talented and experienced, it is more likely for them to know what to expect of the CEO. In other words, the pressure for the CEO to perform increases (Guo & Masulis, 2015).

Diversity in the boardroom is a current trend, where boards shift to include more women and ethnic minorities (Hillman et al. 2002) The Scandinavian countries are putting effort into making the boards more diversified. The latest reform in Norway can confirm this, it requires boards to have at least 40 % women in the boardroom. Spain applies a similar rule with a quota of women in the board. (Rose, 2007). Adams and Ferreira, (2009) argue that boards should add women and ethnic minorities to the board since it improves the board's effectiveness.

With these arguments in mind we have formulated the stated the following hypotheses:

Hypothesis 1: Firms with more talented and experienced independent directors are associated to higher CEO turnover.

The competence of a firm's directors plays an important role and has an impact on firm performance. The competence of the directors depends on their ability to monitor and advise the management of the company. Directors holding multiple outside directorships are seen as talented, since it requires a lot of effort to manage it. (Shivdasani & Yermack, (1999); Ferris et al. (2003).

However, Fich and Shivdasani (2006) have criticised this result and they found that boards with busy directors experience a decline in firm performance and less effective monitoring of CEO. The negative effect is a result of the time constraint that the busy directors face. Busy directors have limited time and energy and as a result they face a dilemma how to allocate their attention to the boards they are involved in. Directors tend to give more attention to firms seen as more prestigious. Fama and Jensen (1983) argue that larger firms are more prestigious and that holding directorships in such firms is therefore characterized with a higher reputation value (Masulis & Mobbs, 2014). Lipton and Lorsch (1992) also reports that busy directors problem is the insufficient time to fulfil their duties.

The study by Masulis and Mobbs (2014) also shows that many talented - that is to say - busy directors have strong incentives to gain reputation in the director's labour market. This reputation incentive is a strong motivation for independent directors to strengthen their monitoring of the CEO. However, all directors are people with different experiences, personal preferences and therefore different incentives. This can explain why some studies such as Fich and Shivdasani (2006) find a negative effect of busy directors on firm performance and corporate governance.

Hypothesis 2: The board is more likely to face a CEO turnover after poor firm performance.

Schmidt et al. (1985) as well as Jensen and Murphy (1990) find that prior performance by the CEO has an increasing effect on CEO turnover. In addition, Hermalin and Weisbach (1998) find that in boards with a higher proportion of independent directors, are more CEO turnover sensitive to firm performance. Firing a CEO is one of the hardest and most important decisions made by the board. Hermalin and Weisbach (1998) argue that one way of evaluating how effectively a board is monitored is by looking at the board's CEO turnover decision.
Dikolli et. al (2014) report that the CEO turnover sensitivity to firm performance declines over the course of his employment as the CEO. Newly elected CEOs are more likely to be replaced as a result of earlier negative performance. (Mayew, Dikolli & Nanda, 2013)
As our hypothesis states, the CEO is more likely to leave the company after a poor firm performance. In order to observe earlier performance by the company we use Tobin's Q lagged one year.

Hypothesis 3: A diversified board has a positive effect on firm performance

Both the female gender and demographic minorities have been traditionally underrepresented in board, and still are. (Catalyst, 2006) Lately, a lot of firms are beginning to support the belief that board diversity leads to higher firm performance. (Brancato, 1999; Carter et al., 2003; Mattis, 2000). Both gender and racial diversity have positive effect on firm performance (Carter et al., 2003; Erhardt et al., 2003). However, the opposite result is documented as well, where a higher percentage of women have negative effects on firm performance (Shrader et al. 1997). Dimovski and Brooks (2006) claim the opposite, that there are no significance results between board diversity and firm performance. Females and racial minorities are operating in a tougher environment than white males, based on the traditional views. These groups of people are therefore forced to maintain multiple networks in order to be successful. The wider social network improves their ability to provide the firm with innovative solutions according to Ibarra, (1992, 1993) and it might lead to a greater firm performance (Miller & Triana, 2009).

Tiaa-cref, (1997) reports that a diversified board can have many benefits, such as to be a more effective decision maker. A diversified board should have members with a range of different personal characteristics, which leads to a diversity in leadership, thinking and also risk-management. A board that is racial and gender diverse signals that the firm is more adaptable to diverse markets and especially if the firm operates in a global market. A diverse board may understand the market and be able to provide effective and good advisements to the management of the firms. (Fondas, 2000). Diversity in the boardroom also reduces the effect of group-thinking which is a common phenomenon in in-group environments such as boards. (Carter, Simkins, and Simpson, 2003)

Firms with a specific target group for a certain product can benefit with a board that represent this particular target group. For example a board consisting of younger members can benefit from the advice of experienced, older and busy directors. This is evidence that board diversifying impacts positively on firm performance (Field, Lowry & Mkrtchyan, 2013). Divergent backgrounds might tackle the same idea in different ways. Having varying backgrounds in the firm can be seen as being more adaptable to its ever-changing environment. (Campbell, 1996) & (Tiaa-cref, 1997). A more diversified group of people might serve the board with a wider range of knowledge, perspectives and information, which a homogenous group probably could fail to provide. (Cox et al., 1991)

5. Data description

5.1 Sample construction

We use board data for publicly traded Swedish firms listed in Stockholm stock exchange market, for the years 2006 to 2011. The data consists of individual director information for the Stockholm stock exchange market, with 10315 director-firm-year-observations[1]. Table 1 presents summary statistics of board structure data[2]. A director is seen as independent if he is independent to the firm, the CEO and the largest shareholder. All non-independent directors

1 Board and director data is hand-collected from Boards of Directors and Auditors in Sweden's Listed Companies, SIS Ägarservice. Ownership structure data is collected from Owners and Power in Sweden's Listed Companies, SIS Ägarservice, provided by Moursli Mohamed-Reda

2 Appendix 2 contain data description of board characteristics data

are either employed by the firm or the CEO. In our sample 42 % of the directors is independent and 58 % is a non-independent director.

5.2 Explanatory variables

5.21 Experienced independent directors

We use director's age as a proxy for the level of experience. An older director usually possesses greater wisdom of life and is therefore seen as more experienced. However age alone is not a good measure of experience. Even if a director is old enough to be viewed as experienced he still might be serving in a board for the first time.

Another sign of experience is when a director is holding multiple outside directorships at the same time. When we combine both age and outside directorships we have created a useful interpretation of experience.

This variable is called old and is a dummy variable with a threshold of directors older than 54 years. The variable is also included in percentage form, capturing the percentage of independent directors within the board at the age of 54 or older.

We use a dummy variable for directors holding outside directorships, this variable is also included in percentage form. Interpreted as the percentage of independent board members holding outside directorships. The measure of holding outside directorships can be viewed as both a measure of talent and business.

We combine the two variables and call it experienced and are a dummy with the threshold of directors older than 54 who hold outside directorships. In similar fashion we also use this variable in percentage form, interpreted as the percentage of independent directors within the board who is older than 54 and hold outside directorships. The merge of the two variables are important as it captures the experience a director is possessing of both age and holding outside directorships.

5.22 Talented independent directors

Following Masulis and Mobbs (2014) we approximate talent of independent directors within a firm as the total number of outside directorships the independent director hold in a given year for each firm. We also use the total number of outside directorships all directors in the board hold, this variable captures the level of talent within the board.

As earlier mentioned both the age and outside directorship variables are combined to a dummy variable including two thresholds. This dummy is our actual measure of talent and experience.

Based on Shivdasani and Yermack (1999) we have come to the conclusion that when you are involved in multiple boards during the same period it is a signal of talent. Talent is based on the fact that a lot of firms want you to sit in their board. Outside directorships are related to both reputation and skill. To be able to serve in multiple boards and be able to monitor effectively is a sign of talent.

However, Fich and Shivdasani (2006) suggest that talented directors holding multiple directorships at the same time have time and energy constraints, which might lower their ability in monitoring and counselling. A consequence of less monitoring is lower sensitivity of CEO turnover to firm performance. The issue of "over boarded" directors, defined as a director that sits in a lot of boards in the same period. Due to time constraints they can only manage to give limited attention to each board, which might reduce the profitability of firms.

5.23 Diversified boards

Following Carter et al. (2003) we define board diversity by the number and percentage of minorities serving in the board. The minorities we use are females and foreigners.

A higher percentage of these types of directors in the board contribute to more diversity and spread of directors with different backgrounds and perspectives, which we believe is valuable (Erhardt et al. 2003). Carter et al. (2003) use the two minority groups (females and foreigners) separately to investigate the effect on firm performance. However in our report we combine these two measures and create a dummy variable including a threshold. The dummy variable is equal to one if the board is diverse and zero otherwise. We also use two versions of this

measure one capturing observations where we have at least 25 % foreigners and females within the board. The other measure is less restricted capturing observations where we have at least one female and one foreigner within the board.

5.3 Dependent variable and controls

We create the dependent variable CEO turnover, interpreted as the change of CEO from time (t) time (t+1). This is a dummy variable (=1 if the board faced a CEO turnover =0 if the board did not face a CEO turnover). We face a problem with the calculation of this variable, the program itself assume that the end year for each firm always faced a CEO turnover. To solve for this problem we create three new variables that help us track the max year of the sample and if there was an actual CEO turnover the last year or not.

A board's size and composition affect the director's incentives and determines much of the effectiveness of the board (Raheja, 2005). The firms in our sample differ from each other in terms of firm characteristics and in order to control for these differences we created the following control variables. Firm size, which is measured as net sales in logarithmic form. A firm's size might affect how prestigious that directorship is to the independent director. A study by Masulis and Mobbs (2013) has shown that independent directors are more active on boards in more prestigious firms.
Leverage ratio is controlled for and computed as total debt divided by total assets.
We use two control variables connected to the CEO, a dummy equal to one if the CEO is not sitting in the board to observe the difference in the cases where the CEO has voting power or not. Lastly we control for is the CEO ownership, computed as the total number of A and B shares owned by the CEO.

"percentindependent" is the percentage of independent directors sitting in the board and computed as the number of independent directors divided by board size. We find that the most common distribution of directors in the boardroom was 0% independent directors and 12.84% of the firms had this distribution. The second most common distribution was 50% independent directors and 11.20% of the firms had this distribution. Board size, which we

compute by the total number of directors sitting in the board excluding the CEO if he is not sitting in the board and including employee directors. Finally we control for the age of the CEO because we might have situations where the CEO left the company as a result of retirement.

In terms of firm data we use the logarithm of Tobin's Q, which is the ratio of the market value of a company's assets divided by the replacement cost of the company's assets. We also use the lagged form of Tobin's Q to capture earlier performance. The explanation for including this variable is that a CEO turnover might happens after a poor firm performance (Jenter & Lewellen, 2010). We also use this variable as dependent in our second hypothesis. Some of the firms in our sample did not have data on leverage and Tobin's Q, after the drop of observations we are left with 768 firm-year observations. We create the firm-level variables separately and merge all the data into the same file.

6. Methodology

6.1 Firms with more talented and experienced independent directors are associated to higher CEO turnover.

Model 1: $\boldsymbol{CEOturnover_{it}=\beta 0+\beta 1Oldhold_{it}+\beta 2Z_{it}+a_i+u_{it},\ t = 1,2,3,4,5,6}$

Model 2: $\boldsymbol{Tobin's\ Q_{it}=\beta 0+\beta 1Oldhold_{it}+\beta 2Z_{it}+a_i+u_{it},\ t = 1,2,3,4,5,6}$

In the first OLS fixed effects regression model our dependent variable is CEO turnover the second model uses Tobin's Q as dependent variable. The constant is denoted as $\beta 0$ and our explanatory variable is old and hold outside directorships. Furthermore, we have 10 control variables in the model. The control variables are denoted with Z in the OLS fixed effects regression model. The error term is divided into two different error terms. One fixed effect that does not change over time, "ai", and one that changes over time, "uit".

For us to able to study this hypothesis we create a dependent dummy variable "CEOturnover" and two main explanatory variables, holding outside directorships and above the age of 54. The controlling variables we include are CEO not sitting in the board, CEO ownership, CEO age, board size, number of total outside directorships in the board, leverage, CEO remuneration, firm size, Tobin's Q and lagged Tobin's Q.

We drop observations for all directors and keep only the CEOs in the sample in order to have one observation every year per firm. This drop result in 1294 firm-year observations and the results showed that 31.92 % faced a CEO turnover during the time interval and that the remaining 68.08 % did not face a CEO turnover.[3] When looking at our explanatory variable we can see that around 20 % of all directors are older than 54 and hold outside directorships.

6.2 The board is more likely to face a CEO turnover after poor firm performance.

Model: $\boldsymbol{CEOturnover_{it}=\beta 0+\beta 1 Lagged\ Tobin's\ Q_{it}+\beta 2 Z_{it}+a_i+u_{it},\ t = 1,2,3,4,5,6}$

In the OLS fixed effects regression model our dependent variable is CEO turnover. The constant is denoted as $\beta 0$, and our explanatory variable is lagged Tobin's Q. Furthermore, we have 10 control variables in the model. The control variables are denoted with Z in the OLS fixed effects regression model. The error term is divided into two different error terms. One fixed effect that does not change over time, "ai", and one that changes over time, "uit".

Our goal with this hypothesis is to observe the effect of earlier performance on CEO turnover. The dependent variable for this specification is CEO turnover, with the explanatory variable Tobin's Q lagged one year. We use two specifications for this model, one including all directors and one where only independent directors are included.

In this specification we control for; CEO not sitting in the board, percent independent directors, CEO ownership, CEO age, board size, total outside directorships in the board, leverage, CEO remuneration, firm size and Tobin's Q. [4]

[3] Table 1 on page 29 contains all descriptive statistics of our data.

[4] We perform the Breusch-Pagan test for all our specifications and find heteroskedasticity in almost all cases, which means we have inconsistent variance in the error term. To solve for this problem we use robust standard errors for all our specifications.
In addition we perform the hausman test for our two specifications and find that the random effects model is inconsistent and as a result we use the fixed effects model.

6.3 A diversified board has a positive effect on firm performance

Model 1: $\boldsymbol{Tobin's\ Q_{it}=\beta 0+\beta 1 Diversifiedboard_{it}+\beta 2 Z_{it}+a_i+u_{it},\ t=1,2,3,4,5,6}$

Model 2: $\boldsymbol{Tobin's\ Q_{it}=\beta 0+\beta 1 Variedboard_{it}+\beta 2 Z_{it}+a_i+u_{it},\ t=1,2,3,4,5,6}$

In the OLS fixed effects regression model our dependent variable is Tobin's Q. The constant is denoted as β0 and our explanatory variable in the first model is diversified board and varied board in the second model. Furthermore, we have 8 control variables in the model. The control variables are denoted with Z in the OLS fixed effects regression model. The error term is divided into two different error terms. One fixed effect that does not change over time, "ai", and one that changes over time, "uit".

This hypothesis is focused on the effect of a diversified board. We measure diversity using three factors; independent directors, female directors and directors with foreign origin.

For independence measure we include both the number of independent directors and the percentage of independent directors within the board. Our gender diversification measure includes number of female directors and the percentage of female directors in the board.

Lastly we use a measure of foreign origin in similar fashion with both the number and percentage of directors with foreign origin. In order to capture this measure we had to go through all our 10315 observations and manually construe each director name to be Swedish or foreign.

To observe the overall diversity within the board we compute a dummy variable consisting of all our diversity measures. The dummy variable "diversified" consists of three thresholds, the board must contain of at least 25 % females and 25 % foreigners. This measure is highly restricted resulting in only 108 observation, we construct a less strict measure called board variety in order to obtain more observations. The board variety measure is a dummy variable consisting of two thresholds, a minimum of one female and one foreign director within the board. This board variety measure result in 563 observations, which is far more than the previous measure.

In this specification we use the controlling variables; age dispersion, lagged Tobin's Q, CEO not sitting in the board, CEO ownership, Board size, number of total outside directorships within the board, leverage, firm size.[5]

[5] We perform the Breusch-Pagan test for all our specifications and find heteroskedasticity in almost all cases, which means we have inconsistent variance in the error term. To solve for this problem we use robust standard errors for all our specifications.
In addition we perform the hausman test for our two specifications and find that the random effects model is inconsistent and as a result we use the fixed effects model.

7. Results and analysis

7.1 *Firms with more talented and experienced independent directors are associated to higher CEO turnover.*

In table 3 and 4 we can observe the two specifications related to our first hypothesis. We find no significant relationship between our explanatory variable and CEO turnover. However we find a significant negative result of director's older than 54 and CEO turnover. This result indicates that older independent directors are more careful monitors, it could be a sign of older directors being more thoughtful and restrained when it comes to firing the CEO. We can also observe a partially significant relationship between independent directors holding multiple outside directorships and CEO turnover. The coefficient is positive and is indicating that board with independent directors holding multiple outside directorships is experiencing an increase in CEO turnover. This indicated that directors holding multiple outside directorships are associated with more intensive monitoring of the CEO. However this result is not credible as it is not significant enough. In addition to our hypothesis we also measure the effects of an experienced and talented independent director on firm performance measured as Tobin's Q. Here we find no significant relationship to our experience and talent measure. We find however a significant result of independent directors older than 54. The coefficient is negative and reveals that boards with independent directors over the age of 54 is experiencing a decrease in firm performance. We believe that this is a result of older directors being more cautious when is comes to extensive decision making such as expanding the business or mergers. This caution could result in loss of investment opportunities.

7.2 *The board is more likely to face a CEO turnover after poor firm performance*

We present the results of the specification related to the second hypothesis in table 5.
Here we find no significant result of our explanatory variable lagged Tobin's Q. We believe that this outcome is due to our CEO turnover variable. This variable is not only restricted to forced CEO turnovers but also voluntary. Turnovers that occur as a result of negative previous performance are most likely forced. If our CEO turnover measure had been restrained to only forced CEO turnovers we believe that the result regarding this hypothesis would be more understandable.

7.3 *A diversified board has a positive effect on firm performance*

Table 6 contains the regression results related to our third hypothesis. When looking at our restricted diversity measure we can see no significant relationship to firm performance. We believe this is due to too less observations. If we look at our less restrictive measure called varied board we see a significant positive relationship to firm performance. A positive coefficient on this measure indicates that boards with at least one female and one foreigner experience better firm performance in general. Our results is in line with reports by Carter et al. 2003 and Erhardt et al. 2003 who find a positive effect of gender and racial diversity on firm performance. We believe the increase in firm performance of having gender and racial diversity is a result of a more diverse board being more effective in decision making. A more diverse board is more likely to have different views and experiences hence reduce group thinking and instead promote profitable discussions. Another possible reason for the increase in firm performance could be that the board is more adaptable to the diverse and global markets. A diverse board may understand the different components of a diverse market and be able to provide useful advisement for the management of the firm.

8. Conclusion

In this thesis we study independent directors and non-independent characteristics and what impact they have on both monitoring of the CEO and firm performance. In our first hypothesis we predict independent directors holding multiple outside directorships and having an age suitable for a well-experienced director to have an increasing effect on CEO turnover. Here we find no significant relationship between an experienced independent director and CEO turnover. However, we find a highly significant negative relationship between independent directors above the age of 54 and CEO turnover. This is a sign that older independent directors are more sensitive monitors. More careful monitoring could be an effect of older directors being more thoughtful and less impulsive when it comes to major decision making such as firing the CEO.

In our result we find a weak significant positive relationship between independent directors holding multiple outside directorships and CEO turnover. We believe this finding is due to a talented independent director have a strong incentive to maintain his reputation as an effective monitor within the director labour market. Our finding is in line with Masulis and Mobbs, (2014) arguments that talented independent directors reputation is a valuable asset and it gives them strong incentive to maintain their reputation as effective monitors. Masulis and Mobbs, (2014) also shows a positive coefficient on busy boards, however the effect is of no statistical significance.

When we test our experienced and talented approximations on firm performance, we find a significant negative relationship with older independent directors on firm performance. This result is harder to interpret, we suspect that older directors in some cases could be less active in the boardroom and therefore contribute to less effective board as a whole. When studying our second hypothesis we find no statistical significance when studying the effect of earlier firm performance on CEO turnover. We think the reason behind this is that earlier firm performance cannot explain why a CEO turnover has occurred. Our findings about this hypothesis would most likely be different if we had data on forced CEO turnovers.

We explore the effect of board diversity, adding directors from minority groups to the board. In our research we set a measure of board diversity too strict resulting in too few observations. We change this measure to a less restricted measure and calling it variety in the board instead. With this measure we find a significant positive impact on firm performance. We interpret this result as a board with a variety of director traits experience better firm performance. The result confirms our hypothesis and shows that there is positive impact on adding minorities to the board.

Our results are similar to findings done by M. Ararat, M. Aksu and A. Tansel Cetin (2015) they find that the demographic diversity index affects firm performance positively in a far more significant way than the individual diversity measures.

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TABLE 1: *Descriptive statistics for 168 Swedish listed companies between years 2005-2011. Board structure.*

	(1)	(2)	(3)	(4)	(5)
Variables	N	Mean	SD	Min	Max
CEO measures					
CEO turnover	1,294	0.154	0.361	0	1
CEO not sitting On the board	1.294	0.516	0.509	0	4
CEO ownership	1,294	1346941	48955130		4.42e+07
CEO age	1,294	50.065	7.015	32	67
CEO remuneration	1,158	5099206	48153790		2.85e+07
Board data					
Board size	1,294	7.463	2.258	3	15
Total outside Directorships in the board	1,294	11.815	17.586	0	136
#Independent directors	4,411	2.038	1.733	0	10
Independent Directors (%)	4,411	0.243	0.204	0	1
Experience measures					
# Outside directorships	9,021	1.744	1.284	0	10
Hold outside Directorship (%)	9,021	0.346	0.287	0	1
Old (age $\geq$ 55)	9,021	4.479	2.093	0	11
Old (age $\geq$ 55) (%)	9,021	0.537	0.194	0	1
Old and hold outside directorship	9,021	1.894	1.498	0	7
Old and hold Outside directorship (%)	9,021	0.206	0.159	0	0.875
Diversity measures					
# Foreigners	1,241	1.088	1.315	0	8
Foreigners (%)	1,241	0.121	0.139	0	1
# Female directors	1,911	1.666	1.284	0	6
Female directors (%)	1,911	0.187	0.128	0	0.667
Board diversity	79	0.061	0.240	0	1
Board variety	563	0.436	0.495	0	1
Age	10,315	54.474	9.141	25	86

The table above shows the descriptive statistics for board and director level data. The variable CEO turnover is dummy variable equal to one if there was a change in position from time (t) to time (t+1). Board size is number of directors sitting in the board excluding the CEO when he is not sitting in the board and including employee directors. Total outside directorships is the combined amount of outside directorships held by directors within the board. Outside directorships is the amount of directorships held by a single director. Old and hold directorship is a dummy variable equal to one if the director is above the age of 54 and hold outside directorships.
Board diversity is a dummy variable including of a threshold of 25 % female and foreign directors. Board variety is a less restricted version of the diversity measure including a threshold of one female and one foreigner in the board.

TABLE 2: *Descriptive statistics for 168 Swedish listed companies between years 2006-2011. Firm performance.*

	(1)	(2)	(3)	(4)	(5)
Variables	N	Mean	SD	Min	Max
Tobin's Q (ln)	1,294	5.736	1.830	0	7.166
Firm size (ln)	1,072	14.363	2.201	4.663	19.553
Leverage	991	85.071	204.805	-2011.16	1710.63

The table above shows descriptive statistics for firm performance. The first variable is Tobin's Q, a measure of firm performance. The formula for Tobin's Q = total market value of firm/ total asset value of firm.
Firm size is measured as the log form of net sales. Leverage is a ratio of total debt computed as total debt divided by total assets.

8. Result

Table 3: Regression explaining Experienced and talented independent directors on CEO turnover (2006-2011, full sample)

Dependent variable: CEO turnover	Independent directors			
	(1)	(2)	(3)	(4)
CEO not sitting in the board	-0.292**	-0.301**	-0.293**	-0.294
	(0.140)	(0.144)	(0.142)	(0.143)
Independent directors (%)	-0.038	-0.009	-0.023	-0.032
	(0.167)	(0.173)	(0.170)	(0.172)
CEO ownership	-0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
CEO age	0.005	0.006	0.004	0.005
	(0.007)	(0.007)	(0.007)	(0.007)
Board size	-0.012	-0.011	-0.011	-0.012
	(0.025)	(0.025)	(0.025)	(0.025)
# Total outside directorships in the board	-0.002	-0.002	-0.001	-0.001
	(0.001)	(0.002)	(0.002)	(0.002)
Leverage	0.001***	0.001**	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
CEO remuneration	0.000*	0.000*	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Firm size (ln)	0.042	0.046	0.045	0.045
	(0.034)	(0.035)	(0.036)	(0.036)
Tobin's Q (ln)	-0.019	-0.012	-0.012	-0.013
	(0.025)	(0.025)	(0.025)	(0.025)
Δ Tobin's Q (ln)	0.007	0.005	0.004	0.004
	(0.026)	(0.026)	(0.025)	(0.025)
Hold outside directorship	0.047*			
	(0.026)			
Hold outside directorship (%)		0.105		
		(0.188)		
Old (age ≥ 55)	-0.081***			
	(0.035)			
Old (age ≥ 55) (%)		-0.189		
		(0.160)		
Old and hold outside directorship			0.015	
			(0.028)	
Old and hold outside directorship (%)				0.009
				(0.216)
Constant	-0.435	-0.545	-0.536	-0.523
	(0.677)	(0.700)	(0.691)	(0.695)
Observations	698	698	698	698
R-squared	0.005	0.004	0.003	0.003

This table presents fixed-effects estimation results for a model using robust standard errors, where the dependent variable is CEO turnover computed as a dummy variable, which equals to 1 if a turnover has occurred, 0 otherwise. The years are 2006-2011. The explanatory variables are; hold outside directorship computed as dummy variable equal to 1 if the director holds at least one directorship and 0 otherwise, hold outside directorship (%) computed as percentage of directors within the board holding outside directorships, old (age ≥ 55) computed as directors older than 54 years, old (age ≥ 55) (%) computed as percentage of directors older than 54 years, old and hold outside directorship computed as directors older than 54 and holding outside directorships, old and hold outside directorship (%) computed as percentage of directors older than 54 and holding outside directorships. The sample used in columns (1)–(4) we use a sample of independent directors only. The rest of the variables are as defined in Appendix. Robust standard errors in parentheses. ***, ** and * correspond to statistical significance at the 1%, 5% and 10% levels respectively.

Table 4: Regression explaining Experienced and talented independent directors on Tobin's Q (2006-2011, full sample)

Dependent variable: Tobin's Q	Independent directors			
	(1)	(2)	(3)	(4)
CEO not sitting in the board	-0.079	-0.085	-0.090	-0.078
	(0.212)	(0.218)	(0.216)	(0.215)
Independent directors (%)	0.270	0.355	0.249	0.355
	(0.282)	(0.269)	(0.285)	(0.266)
CEO ownership	0.000*	0.000**	0.000*	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
CEO age	-0.16*	-0.018**	-0.017*	-0.016*
	(0.009)	(0.009)	(0.009)	(0.009)
Age dispersion	-0.038	-0.027	-0.034	-0.032
	(0.029)	(0.028)	(0.029)	(0.029)
Board size	0.029	0.034	0.030	0.033
	(0.050)	(0.052)	(0.052)	(0.052)
# Total outside directorships in the board	-0.005	-0.004	-0.004	-0.004
	(0.003)	(0.003)	(0.003)	(0.003)
Leverage (ln)	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Firm size (ln)	-0.057	-0.046	-0.053	-0.051
	(0.066)	(0.068)	(0.066)	(0.066)
Δ Tobin's Q (ln)	-0.083*	-0.094*	-0.089*	-0.090*
	(0.050)	(0.053)	(0.050)	(0.051)
Hold outside directorship	0.059			
	(0.077)			
Hold outside directorship (%)		0.227		
		(0.392)		
Old (age $\geq$ 55)	-0.148**			
	(0.072)			
Old (age $\geq$ 55) (%)		0.320		
		(0.256)		
Old and hold outside directorship			-0.086	
			(0.087)	
Old and hold outside directorship (%)				0.346
				(0.409)
Constant	7.920***	7.419***	7.826***	7.601***
	(0.976)	(0.992)	(0.972)	(0.983)
Observations	715	715	715	715
R-squared	0.264	0.358	0.332	0.343

This table shows estimation results for the regression fixed-effects model using robust standard errors. The dependent variable is CEO turnover computed as a dummy variable, which equals to 1 if a turnover has occurred, 0 otherwise. The years are 2006-2011. The explanatory variables are; hold, computed as dummy variable equal to 1 if the director holds at least one directorship and 0 otherwise, hold outside directorship (%) computed as percentage of directors within the board holding outside directorships, old (age $\geq$ 55) computed as directors older than 54 years, old (age $\geq$ 55) (%) computed as percentage of directors older than 54 years, old and hold outside directorship computed as directors older than 54 and holding outside directorships, old and hold outside directorship (%) computed as percentage of directors older than 54 and holding outside directorships. We report results using the full sample. Standard errors in parentheses. ***, ** and * correspond to statistical significance at the 1%, 5% and 10% levels respectively.

Table 5: Regression explaining Δ Tobin's Q on CEO turnover (2006-2011, full sample)

	(1)	(2)
Dependent variable: CEO turnover	All directors	Independent directors
CEO not sitting in the board	-0.103	-0.294**
	(0.136)	(0.143)
Independent directors (%)	-0.195*	-0.033
	(0.106)	(0.167)
CEO ownership	0.000	0.000
	(0.000)	(0.000)
CEO age	0.005	0.005
	(0.007)	(0.007)
Board size	0.007	-0.011
	(0.031)	(0.025)
# Total outside directorships	-0.001	-0.001
in the board	(0.001)	(0.002)
Leverage	0.001***	0.001***
	(0.000)	(0.000)
CEO remuneration	0.000*	0.000
	(0.000)	(0.000)
Firm size (ln)	0.034	0.045
	(0.037)	(0.036)
Tobin's Q (ln)	-0.001	-0.013
	(0.027)	(0.025)
Δ Tobin's Q (ln)	0.024	0.004
	(0.026)	(0.025)
Constant	-0.709	-0.052
	(0.708)	(0.688)
Observations	751	698
R-squared	0.007	0.003

This table presents fixed-effects estimation results for a model using robust standard errors, where the dependent variable is CEO turnover computed as a dummy variable, which equals to 1 if a turnover has occurred, 0 otherwise. The years are 2006-2011. The explanatory variables are; Tobin's Q and ΔTobin's Q computed as Tobin's Q in the time period, t - 1. We report results using the full sample. The sample used in columns (1) consists of all outside directors, regardless of their independence status. In columns (2) we use a sample of independent directors only. The rest of the variables are as defined in Appendix. Robust standard errors in parentheses. ***, ** and * correspond to statistical significance at the 1%, 5% and 10% levels respectively.

Table 6: Regression explaining diversity measures on Tobin's Q

Dependent variable: Tobin's Q	All directors			
	(1)	(2)	(3)	(4)
CEO not sitting in the board	0.068	0.038	0.067	0.054
	(0.171)	(0.155)	(0.178)	(0.184)
CEO ownership	0.000**	0.000**	0.000**	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
Board size	0.010	0.008	-0.010	-0.006
	(0.049)	(0.046)	(0.049)	(0.049)
# Total outside directorship	-0.004	-0.003	-0.000	-0.002
in the board	(0.003)	(0.003)	(0.003)	(0.003)
Leverage	-0.001	-0.001	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Firm size (ln)	-0.060	-0.055	-0.051	-0.064
	(0.060)	(0.059)	(0.061)	(0.058)
Δ Tobin's Q (ln)	-0.064	-0.066	-0.073	-0.073
	(0.053)	(0.053)	(0.050)	(0.050)
Age dispersion	-0.023	-0.023	-0.026	-0.025
	(0.023)	(0.023)	(0.024)	(0.021)
# Independent directors	0.050**			
	(0.023)			
# Foreigners	-0.091			
	(0.060)			
# Female directors	-0.059			
	(0.039)			
Independent directors (%)		0.270*		
		(0.140)		
Foreigners (%)		-1.051		
		(0.658)		
Female directors (%)		-0.457		
		(0.330)		
Board diversity			-0.000	
			(0.090)	
Board variety				0.193**
				(0.089)
Constant	7.097***	7.131***	7.144***	7.265***
	(0.823)	(0.831)	(0.846)	(0.866)
Observations	768	768	768	768
R-squared	0.123	0.125	0.246	0.198

This table presents fixed-effects estimation results for a model using robust standard errors, where the dependent variable is Tobin's Q computed as the total market value of the firm divided by the total asset value. The years are 2006-2011. The explanatory variables are; # independent directors computed as number of independent directors sitting in the board, # foreigners computed as number of foreigners sitting in the board, # female directors computed as number of female directors sitting in the board, independent directors (%) computed as percentage of independent directors sitting in the board, computed as the number of independent directors divided by board size, foreigners (%) computed as percentage of foreigners sitting in the board, computed as the number of foreigners divided by board size, female directors (%) computed as number of female directors sitting in the board, board diversity computed as dummy variable equal to 1 if the board consists of at least 25 % females, 25 % foreigners and 50 % independent directors, and 0 otherwise and board variety computed as dummy variable equal to 1 if the board consists of at least one foreigner and one female and 0 otherwise. The sample used in columns (1)–(4) consists of all outside directors, regardless of their independence status. The rest of the variables are as defined in Appendix. Robust standard errors in parentheses. ***, ** and * correspond to statistical significance at the 1%, 5% and 10% levels respectively.

Appendix 1

Panel A ***Board Characteristics***

Variable *Description*

CEO turnover	Dummy variable equal to 1 if a CEO turnover has occurred and 0 otherwise.
CEO not sitting in the board	CEO not sitting in the board.
CEO ownership	Sum of A-shares and B-shares held by the CEO.
CEO age	CEO's age.
Board Size	Total number of directors sitting in the board. Includes employee directors and excludes the CEO when he/she is not sitting in the board.
# Total outside directorships in the board	Total number of directorships held by a board member.
CEO remuneration	CEO's total remuneration.
Hold outside directorship	Dummy variable equal to 1 if the director holds at least one directorship and 0 otherwise.
Hold outside directorship (%)	Percentage of directors within the board holding outside directorships.
Old (age $\geq$ 55)	Directors older than 54 years.

Old (age $\geq$ 55) (%)	Percentage of directors older than 54 years.
Old and hold outside directorship	Directors older than 54 and holding outside directorships.
Old and hold outside directorship (%)	Percentage of directors older than 54 and holding outside directorships.
Age dispersion	Standard deviation of age.
# Independent directors	Number of independent directors sitting in the board.
# Foreigners	Number of foreigners sitting in the board.
# Female directors	Number of female directors sitting in the board.
Independent directors (%)	Percentage of independent directors sitting in the board, computed as the number of independent directors divided by board size.
Foreigners (%)	Percentage of foreigners sitting in the board, computed as the number of foreigners divided by board size.
Female directors (%)	Percentage of female directors sitting in the board, computed as the number of female directors divided by board size.
Board diversity	Dummy variable equal to 1 if the board consists of at least 25 % females and 25 % foreigners and 0 otherwise.
Board variety	Dummy variable equal to 1 if the board consists of at least one foreigner and one female and 0 otherwise.

Panel B ***Firm data***

Variable *Description*

Tobin's Q (ln)	A measure of firm performance computed as total market value of firm divided by total asset value of the firm, in log-form.
Δ Tobin's Q (ln)	Tobin's q lagged one year, in log-form.
Firm size (ln)	Net sales, in log-form
Leverage	Ratio of total debt to total assets.